

# Results - Zero shot - LlamaChat

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[Robot LLM tasks](#)

### Task 1

#### Prompt

```
<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). The available actions are: "moveTo" [/INST]
```

#### Output

```
[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). The available actions are: "moveTo" [/INST] <root main_tree_to_execute = "MainTree" >
```

Hinweis: This Behavior Tree is designed for a mobile robot to visit a sequence of locations. The robot will execute the actions associated with each location in the sequence. The actions are: "moveTo".

```
<BehaviorTree ID="MainTree">
  <Sequence name="root_sequence">
    <SetBlackboard output_key="location_0" value="(0,0)"/>
    <SetBlackboard output_key="location_1" value="(2,3)"/>
    <SetBlackboard output_key="location_2" value="(4,7)"/>
    <SetBlackboard output_key="location_3" value="(5,11)"/>
  <Sequence>
    <Fallback>
```

```

        <Action ID="moveTo" output_key="location_0" result="true" />
        <Action ID="moveTo" output_key="location_1" result="true" />
        <Action ID="moveTo" output_key="location_2" result="true" />
        <Action ID="moveTo" output_key="location_3" result="true" />
    </Fallback>
</Sequence>
</Sequence>
</root_tree_to_execute>

```

## Task 2

### Prompt

```

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to
visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). Each
location is associated with a reading: (10, 20, 13, 27). Location with a
reading above 15 must be visited first. The available actions are: "moveTo"
[/INST]

```

### Output

```

[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to
visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). Each
location is associated with a reading: (10, 20, 13, 27). Location with a
reading above 15 must be visited first. The available actions are: "moveTo"
[/INST] <root main_tree_to_execute="MainTree">
    <BehaviorTree ID="MainTree">
        <Sequence>
            <Fallback>
                <Condition ID="IsGlobalEvent" value="0"/>
                <Sequence>
                    <Fallback>
                        <Condition ID="IsLocationReached" current_location="
(0,0)" goal_location="(0,0)" reading="10"/>
                        <Action ID="moveTo" goal_location="(0,0)"/>
                    </Fallback>

```

```

        <Fallback>
            <Condition ID="IsLocationReached" current_location="(0,0)" goal_location="(2,3)" reading="20"/>
            <Action ID="moveTo" goal_location="(2,3)"/>
        </Fallback>
        <Fallback>
            <Condition ID="IsLocationReached" current_location="(2,3)" goal_location="(4,7)" reading="13"/>
            <Action ID="moveTo" goal_location="(4,7)"/>
        </Fallback>
        <Fallback>
            <Condition ID="IsLocationReached" current_location="(4,7)" goal_location="(5,11)" reading="27"/>
            <Action ID="moveTo" goal_location="(5,11)"/>
        </Fallback>
    </Sequence>
    <Action ID="moveTo" goal_location="(0,0)"
name="GoToFirstLocation"/>
</Fallback>
</Sequence>
</BehaviorTree>
</root>

```

## Task 3

### Prompt

```

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to
visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). During
navigation a location may become unreachable, if this happens, skip it and
move to the next one. The available actions are: "moveTo", "CheckReachable",
"Continue" [/INST]

```

### Output

```

[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to

```

visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). During navigation a location may become unreachable, if this happens, skip it and move to the next one. The available actions are: "moveTo", "CheckReachable", "Continue" [/INST] <root main\_tree\_to\_execute="MainTree">

```
<BehaviorTree ID="MainTree">
  <Sequence>
    <!-- Non-repetitive locations to visit -->
    <SetBlackboard output_key="locations" value="(0,0)(2,3)(4,7)
(5,11)"/>

    <Fallback>
      <ReactiveSequence>
        <!-- Check and visit locations -->
        <GetNextLocation locations="{locations}" location="{
{location}}" unvisited_location="{unvisited_location}"/>
        <Sequence>
          <CheckReachable location="{location}"/>
          <SubTree ID="VisitLocation" location="{location}"
unvisited_location="{unvisited_location}"/>
        </Sequence>
      </ReactiveSequence>

      <Sequence>
        <Inverter>
          <ForceFailure>
            <ReactiveFallback>
              <CheckBlackboard
input_key="unvisited_location" value_type="Location"
return_on_mismatch="FAILURE" value="{unvisited_location}"/>
              <Sequence>
                <GetNextLocation locations="{locations}"
location="{location}" unvisited_location="{unvisited_location}"/>
                <SubTree ID="VisitLocation" location="{
{location}}" unvisited_location="{unvisited_location}"/>
              </Sequence>
            </ReactiveFallback>
          </ForceFailure>
        </Inverter>

        <!-- Move to the next location if the current one has
```

```

been visited -->
        <SubTree ID="VisitLocation" location="{location}"
unvisited_location="{unvisited_location}"/>
        </Sequence>
    </Fallback>

    <SubTree ID="VisitLocation" location="{location}"
unvisited_location="{unvisited_location}"/>
    </Sequence>
</BehaviorTree>

<BehaviorTree ID="VisitLocation">
    <Sequence>
        <MoveToPose position="{location}" />
        <SetBlackboard output_key="location" value="{location}"/>
        <SetBlackboard output_key="unvisited_location" value="
{unvisited_location}"/>
    </Sequence>
</BehaviorTree>
</root>

```

## Task 4

### Prompt

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a mobile manipulator tasked to visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). At each location, the mobile manipulator activates the robotic arm. The available actions are: "moveTo", "activateManipulator" [/INST]

### Output

[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a mobile manipulator tasked to visit a sequence of locations: ((0,0), (2,3), (4, 7), (5, 11)). At each location, the mobile manipulator activates the robotic arm. The available actions are: "moveTo", "activateManipulator" [/INST] <root

```

main_tree_to_execute="MainTree">
  <BehaviorTree ID="MainTree">
    <Sequence>
      <!-- Test -->
      <SetBlackboard output_key="location1" value="(0,0)" />
      <SetBlackboard output_key="location2" value="(2,3)" />
      <SetBlackboard output_key="location3" value="(4,7)" />
      <SetBlackboard output_key="location4" value="(5,11)" />

      <Sequence>
        <SubTree ID="MoveTo" target="location1" />
        <SubTree ID="ActivateManipulator" />

        <SubTree ID="MoveTo" target="location2" />
        <SubTree ID="ActivateManipulator" />

        <SubTree ID="MoveTo" target="location3" />
        <SubTree ID="ActivateManipulator" />

        <SubTree ID="MoveTo" target="location4" />
        <SubTree ID="ActivateManipulator" />
      </Sequence>
    </Sequence>
  </BehaviorTree>
</root>

```

## Task 5

### Prompt

```

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to
explore an area. The available actions are: "generateNextDestination",
"moveToDestination", "CheckForExplorationComplete" [/INST]

```

### Output

```

[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML

```

```
format.\n<</SYS>>\n\nThe behavior tree represents a mobile robot tasked to
explore an area. The available actions are: "generateNextDestination",
"moveToDestination", "CheckForExplorationComplete" [/INST] <root
main_tree_to_execute="MainTree">
  <BehaviorTree ID="MainTree">
    <Sequence>
      <Fallback>
        <Action ID="generateNextDestination"
location="GaussianIntegration" pose="position" output_port="destination" />
        <Action ID="moveToDestination" goal_pose="{destination}" />
      </Fallback>
      <Action ID="CheckForExplorationComplete" />
    </Sequence>
  </BehaviorTree>
</root>
```

## Task 6

### Prompt

```
<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to
find and reach a target. The manipulator moves in different locations and
check for the presence of a target object. When the target is found,
approach it. The available actions are: "moveToNewConfiguration",
"CheckForTarget", "ApproachTarget" [/INST]
```

### Output

```
[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to
find and reach a target. The manipulator moves in different locations and
check for the presence of a target object. When the target is found,
approach it. The available actions are: "moveToNewConfiguration",
"CheckForTarget", "ApproachTarget" [/INST] <root
main_tree_to_execute="MainTree">
  <BehaviorTree ID="MainTree">
    <Sequence>
```

```

        <Fallback>
            <Sequence>
                <Action ID="moveToNewConfiguration" goal_pose="{goal_pose}" />
            </Sequence>
        </Fallback>
    </Sequence>
</BehaviorTree>
</root>

```

## Task 7

### Prompt

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to perform a pick and place routine. The manipulator observe the item from multiple points of view and each time tries to estimate a grasp. If the systems fails to identify a grasp after five observations, the action fails and the arm return to a resting position. When the grasp is successfully estimated, the manipulator picks the item and drop it to a predefined location. After the drop, the arm moves to a resting position. The available actions are: "performObservation", "estimateGrasp", "Pick", "Drop", "moveToRestPosition", "moveToDropPositon" [/INST]

### Output



[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to perform a pick and place routine. The manipulator observe the item from multiple points of view and each time tries to estimate a grasp. If the systems fails to identify a grasp after five observations, the action fails and the arm return to a resting position. When the grasp is successfully estimated, the manipulator picks the item and drop it to a predefined location. After the drop, the arm moves to a resting position. The available actions are: "performObservation", "estimateGrasp", "Pick", "Drop", "moveToRestPosition", "moveToDropPositon" [/INST] <root

main\_tree\_to\_execute="MainTree">

<BehaviorTree ID="MainTree">

<Sequence>

<Fallback>

<Sequence>

<ForceFailure>

<Sequence>

<Action ID="performObservation" mode="1"

threshold="3" />

<Action ID="estimateGrasp" item="Item" mode="3"

/>

<ForceFailure>

<Action ID="performObservation" mode="1"

threshold="3" />

</ForceFailure>

<ForceFailure>

<Action ID="performObservation" mode="1"

threshold="3" />

</ForceFailure>

<Action ID="estimateGrasp" item="Item" mode="3"

/>

</Sequence>

</ForceFailure>

<Sequence>

<Action ID="Pick" item="Item" />

<Action ID="Drop" goal="DropPosition" />

<Action ID="moveToRestPosition" />

</Sequence>

</Sequence>

```

        <Sequence>
            <Action ID="moveToDropPositon" goal="DropPosition" />
            <Action ID="Pick" item="Item" />
            <Action ID="Drop" goal="DropPosition" />
        </Sequence>
    </Fallback>
</Sequence>
</BehaviorTree>
</root>

```

## Task 8

### Prompt

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to push buttons in a specific sequence to to transform raw materials into processed materials. Use "Button R" to receive the raw materials. Use "Button P" to start the processing. Use "Button C" to complete the processing. The system has to periodically check the status of the materials to decide if the processing has been completed. The available actions are: "pressButton", "evaluateProcessing" [/INST]

### Output

[INST] <<SYS>>\nYou will be provided a summary of a task performed by a robot, and your objective is to express this task as a behavior tree in XML format.\n<</SYS>>\n\nThe behavior tree represents a manipulator tasked to push buttons in a specific sequence to to transform raw materials into processed materials. Use "Button R" to receive the raw materials. Use "Button P" to start the processing. Use "Button C" to complete the processing. The system has to periodically check the status of the materials to decide if the processing has been completed. The available actions are: "pressButton", "evaluateProcessing" [/INST] <root  
main\_tree\_to\_execute="MainTree">  
 <!-- ////////// -->  
 <BehaviorTree ID="MainTree">  
 <Fallback>  
 <ReactiveSequence>

```

        <IsMaterialsReady/>
        <Sequence>
            <SubTree ID="ProcessMaterials" button="Button R"/>
            <SubTree ID="PushButtons" buttone="Button C"
buttonone2="Button P"/>
        </Sequence>
    </ReactiveSequence>
</Fallback>
</BehaviorTree>
<!-- ////////// -->
<TreeNodeModel>
    <SubTree ID="ProcessMaterials">
        <input_port name="button"/>
    </SubTree>
    <SubTree ID="PushButtons">
        <input_port name="buttone"/>
        <input_port name="buttonone2"/>
    </SubTree>
    <Action ID="evaluateProcessing">
        <input_port name="status"/>
    </Action>
    <Action ID="pressButton">
        <input_port name="button"/>
    </Action>
</TreeNodeModel>
<!-- ////////// -->
</root>

```

## Task 9

### Prompt

```

<s>[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n</SYS>>\n\nThe behavior tree represents a mobile manipulator
tasked to move between multiple stations to assemble a product. The order of
actions is the following. Start from parking position and move to "Station
A". In "Station A" pick up "Component A" and put it on the robot tray. Move
to "Station B" and collect "Component B" and put it on the robot tray. Move
to "Station C" and deliver "Component A" and "Component B". Move to "Station

```

D" and activate the assembly process. Return to "Station C", collect the finished product and put it on the robot tray. Deliver the finished product to the parking position. In case of failure of any of the actions, the mobile manipulator returns to parking position and empties its tray. The available actions are: "moveTo", "Pick", "Drop", "ActivateProcess", "EmptyTray" [/INST]

## Output

```
[INST] <<SYS>>\nYou will be provided a summary of a task performed by a
robot, and your objective is to express this task as a behavior tree in XML
format.\n<</SYS>>\n\nThe behavior tree represents a mobile manipulator
tasked to move between multiple stations to assemble a product. The order of
actions is the following. Start from parking position and move to "Station
A". In "Station A" pick up "Component A" and put it on the robot tray. Move
to "Station B" and collect "Component B" and put it on the robot tray. Move
to "Station C" and deliver "Component A" and "Component B". Move to "Station
D" and activate the assembly process. Return to "Station C", collect the
finished product and put it on the robot tray. Deliver the finished product
to the parking position. In case of failure of any of the actions, the
mobile manipulator returns to parking position and empties its tray. The
available actions are: "moveTo", "Pick", "Drop", "ActivateProcess",
"EmptyTray" [/INST] <root main_tree_to_execute="MainTree">
```

```
  <BehaviorTree ID="MainTree">
```

```
    <Sequence>
```

```
      <Parallel threshold="1">
```

```
        <Sequence name="StationA">
```

```
          <Action ID="moveTo"
```

```
goal="0.75;0;2.5" name="Go to Station A"/>
```

```
          <Action ID="pick" name="Pick
```

```
Component A"/>
```

```
          <Action ID="putTray" name="Put
```

```
Component A on tray"/>
```

```
        </Sequence>
```

```
      <Sequence name="StationB">
```

```
        <Action ID="moveTo" goal="1;0;2.5"
```

```
name="Go to Station B"/>
```

```
        <Action ID="pick" name="Pick
```

```
Component B"/>
```

```
        <Action ID="putTray" name="Put
```

```

Component B on tray"/>
        </Sequence>
        <Sequence name="StationC">
            <Action ID="moveTo" goal="0;0;0"
name="Go to Station C"/>
            <Action ID="emptyTray" name="Empty
tray"/>
            <Action ID="pick" name="Pick
Component A and Component B"/>
            <Action ID="deliver" name="Deliver
Component A and Component B"/>
        </Sequence>
        <Sequence name="StationD">
            <Action ID="moveTo"
goal="-0.5;0;2.5" name="Go to Station D"/>
            <Action ID="activateProcess"
name="Activate process"/>
            <Action ID="emptyTray" name="Empty
tray"/>
            <Action ID="pick" name="Pick
finished product"/>
            <Action ID="putTray" name="Put
finished product on tray"/>
        </Sequence>
    </Parallel>
    <Action ID="emptyTray" name="Empty tray"/>
</Sequence>
</BehaviorTree>
</root>

```